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Appl. No. 10/604,354

Amdt. dated March 16, 2006

Reply to Office action of October 19, 2005

**Amendments to the Claims:****Listing of Claims:**

Claim 1 (currently amended): An electrostatic discharge protection circuit comprising:

5           an npn Darlington circuit comprising ~~[[a]] an~~ input end and an output end, ~~the~~  
            ~~output end of the npn Darlington circuit being grounded;~~ and  
            an N-type channel metal-oxide semiconductor (NMOS) transistor, a drain of the  
            NMOS transistor connected to the input end of the npn Darlington circuit, a  
            source of the NMOS transistor connected to a control end of the npn  
10           Darlington circuit, a gate of the NMOS transistor connected to the output end  
            of the npn Darlington circuit.

Claim 2 (original): The electrostatic discharge protection circuit of claim 1 wherein the  
            npn Darlington circuit further comprises two npn-type bipolar junction  
            transistors (BJTs), each npn BJT comprising an N+ buried layer, a P well formed  
15           on the N+ buried layer, an N well formed on the N+ buried layer around the P  
            well, and an N+ node formed in a top side of the P well; and the NMOS  
            transistor comprises an N+ buried layer, a P well formed on the N+ buried layer,  
            an N well formed on the N+ buried layer around the P well, and two N+ nodes  
            formed in a top side of the P well.

20           Claim 3 (original): The electrostatic discharge protection circuit of claim 2 wherein the  
            two BJTs and the NMOS transistor are formed on a P-substrate, and the N wells  
            of the two npn BJTs and the NMOS transistor are used to isolate the P wells and  
            the P-substrate.

25           Claim 4 (original): The electrostatic discharge protection circuit of claim 3 further  
            comprising a P-epi layer formed on the P-substrate, and wherein the N wells of  
            the two npn BJTs and the NMOS transistor are formed on the P-epi layer.

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Claim 5 (original): The electrostatic discharge protection circuit of claim 3 further comprising an N-epi layer formed on the P-substrate, and the N wells of the two npn BJTs and the NMOS transistor are formed on the N-epi layer.

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Claim 6 (original): The electrostatic discharge protection circuit of claim 3 wherein the circuit is manufactured by a BiCMOS process.

Claim 7 (original): The electrostatic discharge protection circuit of claim 1 wherein the npn Darlington circuit further comprises two npn BJTs, each npn BJT comprising a deep N well, a P well formed on the deep N well, and an N+ node formed in a top side of the P well; and the NMOS transistor comprises a deep N well, a P well formed on the N well, and two N+ nodes formed in a top side of the P well.

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Claim 8 (original): The electrostatic discharge protection circuit of claim 7 wherein the two BJTs and the NMOS transistor are formed on a P-substrate, and the deep N wells of the two npn BJTs and the NMOS transistor are used to isolate the P wells and the P-substrate.

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Claim 9 (original): The electrostatic discharge protection circuit of claim 8 wherein the circuit is manufactured by a CMOS process.

Claim 10 (original): The electrostatic discharge protection circuit of claim 1 wherein the input end of the npn Darlington circuit is connected to an input end of another circuit.

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Claim 11 (original): The electrostatic discharge protection circuit of claim 1 wherein the

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input end of the npn Darlington circuit is connected to a voltage source.

Claim 12 (original): The electrostatic discharge protection circuit of claim 1 further comprising:

- 5 a pnp Darlington circuit, an input end of the pnp Darlington circuit connected to the input end of the npn Darlington circuit, an output end of the pnp Darlington circuit connected to a voltage source; and
- 10 a P-type channel metal-oxide semiconductor (PMOS) transistor, a drain of the PMOS transistor connected to the input end of the pnp Darlington circuit, a source of the PMOS transistor connected to a control end of the pnp Darlington circuit, a gate of the PMOS transistor connected to the output end of the pnp Darlington circuit.

Claim 13 (new): An electrostatic discharge protection circuit comprising:

- 15 a pnp Darlington circuit comprising an input end and an output end; and
- 20 a P-type channel metal-oxide semiconductor (PMOS) transistor, a drain of the PMOS transistor connected to the output end of the pnp Darlington circuit, a source of the PMOS transistor connected to a control end of the pnp Darlington circuit, a gate of the PMOS transistor connected to the input end of the pnp Darlington circuit.